دفعة 33

Sana'a University
College of Medicine
Comprehensive Histology Exam paper 1
Date
Time—2hrs

1. Organelle Related with microtubule organization
2. The plasma membrane proteins are synthesized by this organelle,
3. This organelle proliferates by division
4. This organelle plays role in Muscle contraction and relaxation
5. This organelle has a cis and trans face
6. Organelle Involved in intracytoplasmic digestion
7. Thick, concentric sheaths of elastic membranes, are located in its tunica media.
8. conducting arteries
9. its tunica media is thick, composed of layers of smooth muscle cells.
10. Its tunica intima is characterized by its endothelium and a prominent sub endothelial internal elastic lamina.
11. Its tunica adventitia is scant, whereas the tunica media consists of up to 6 layers of smooth muscle
12. Capillaries located in endocrine glands, the intestine, the pancreas, and the glomeruli of kidneys
13. These veins possess cardiac muscle in the tunica adventitia for a short distance as they enter the heart
14. This BV has a diameter of 0.2 to l mm and are involved in exchange of metabolites with tissues and in diapedesis (exiting of blood cells through vessel walls) .
15. Capillaries located in the liver, spleen, bone marrow, lymph nodes, and adrenal cortex.
16. Chromatin Located in 3 areas of the nucleus
17. Chromatin NOT visible in LM
18. Division common In somatic cells
19. Capillaries located in nervous tissue, muscle, connective tissue, exocrine glands, and the lungs
20. Division common In germ cells
21. The nodule present before antigen stimulation
22. a central pale core called the **germinal *center*** appears.
23. epithelium **of epidermis**

A. LARGE ARTERY
B. MUSCULAR ARTERIES
C. ARTERIOLES
D. CAPILLARIES
E. CONTINOUS CAPILLARIES
F. FENESTRATED CAPILLARIES
G. SINUSOIDS
H. VENULES
I. LARGE VEINS
J. RER
K. SER
L. GOLGI APP
M. MITOCHONDRIA
N. LYSOSOMES
O. CENTRIOLE
P. HETEROCHROMATIN
Q. EUCHROMATIN
R. MITOSIS
S. MEIOSIS
T. PRIMARY L NODULES
U. SECONDARY L NODULES
V. KERATINOCYTES
W. NON-KERATINOCYTES

OMKINAA BCFIDG PORESTUV

Loay Al Bokari

CHOOSE THE CORRECT ANSWER

1. Tissues are classified according to
   A. body region.
   B. Location in a specific organ.
   C. cellular life span.
   D. cellular appearance and function.
2. Knowledge of what constitutes normal tissue structure makes it easier for a pathologist to

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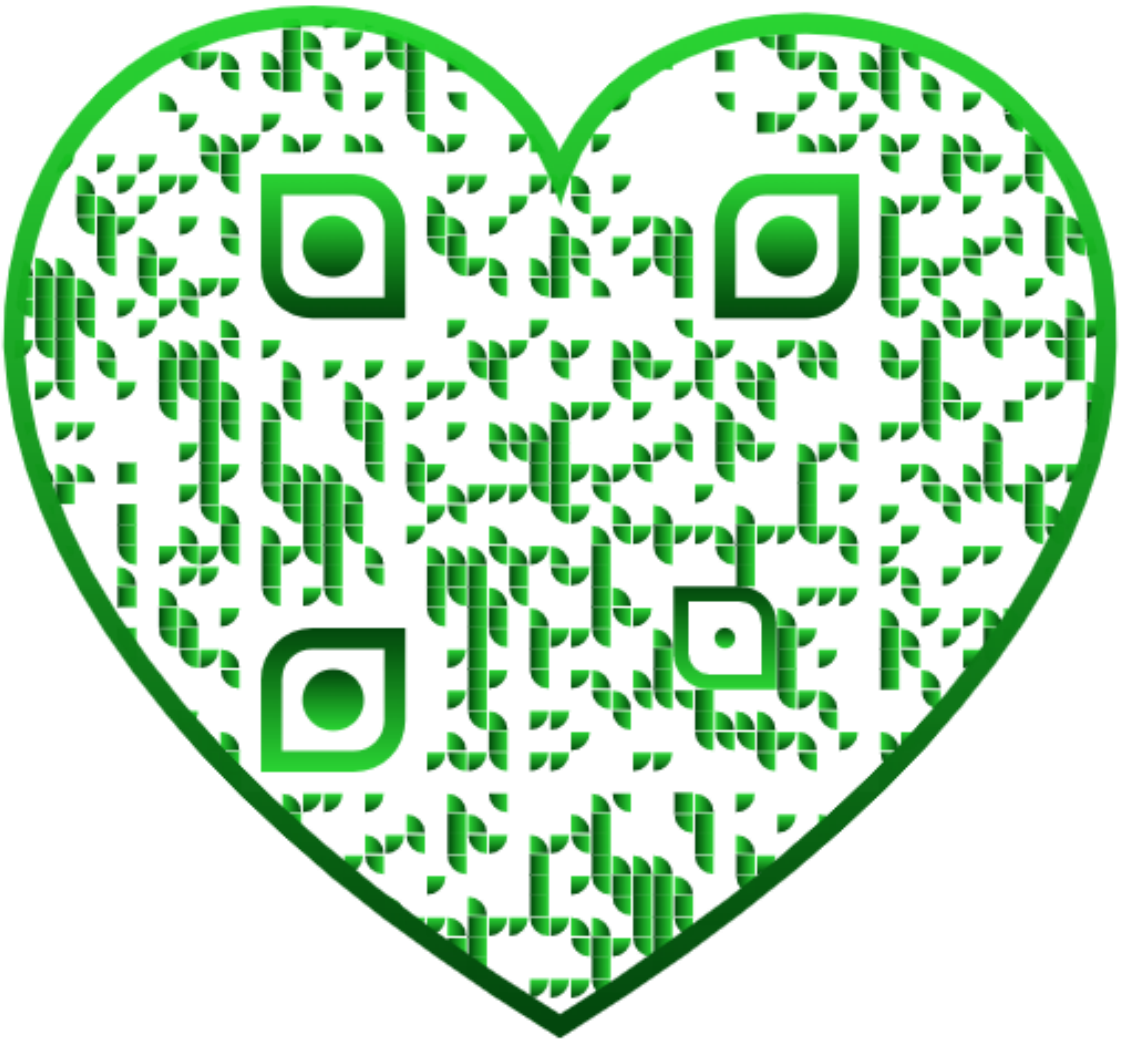

12. The connective tissue cells responsible for storage of triacylglycerol is

A. Pericyte.
B. Melanocyte.
C. Reticular cells.
D. Melanophore.

13. One of the following is false about white collagenous fibers.

A. They are made of collagen proteins
B. They are demonstrated by orcein stain.
C. They are affected by acids & alkalis.
D. They give tissues strength and rigidity.

14. One of the following is false about characteristics of yellow elastic fibers

A. They appear as thin branching fibers.
B. They resist acids and alkalis.
C. They are stained by orcein stain.
D. They give tissues strength and rigidity.

15. Contraction in all types of muscle requires calcium ions. Which of the following muscle components can bind or sequester calcium ions?

A. Rough endoplasmic reticulum
B. Tropomyosin
C. Troponin
D. Active sites on actin

TRUE OR FALSE

T 1. The matrix is composed of fibers and ground substance which are synthesized and secreted by fibroblasts, chondroblasts, osteoclasts,
T 2. Connective tissues are of mesodermal origin
F 3. Embryonic mesenchyme comprises a loose network of stellate cells and little intercellular fluid
T 4. Dye particles injected into the body are engulfed by macrophages
F 5. YELLOW FAT CELLS present mostly during early postnatal life in humans, abundant in hibernating animals for heat production
T 6. Chondrogenic (perichondrial) cells These are the stem cells that form the cellular part of the perichondrium
T 7. MATRIX is non-vascular but it allows diffusion of oxygen and nutrients from capillaries on the outside to reach the chondrocyte
F 8. Outer fibrous laver It is formed of cartilage forming cells (chondroblasts) which can divide and secrete matrix and become chondrocytes
T 9. Fresh elastic cartilage has a yellow color due to presence of elastin in the elastic fibers
T 10. Osteoblasts arise from blood cells called monocytes
T 11. Osteocytes are oval, branched cells, oval, central nuclei, slightly basophilic cytoplasm rich is alkaline phosphatase enzymes.
T 12. Osteoclasts is on the inner surface of bone where resorption takes place. Bone marrow spaces, medullary cavities and endosteum
F 13. triads in human skeletal muscle are located in the Z disk.

FILL IN THE BLANKS

14. In slow blood stream and in blood film they adhere together forming Rouleaux due to high surface tension
15. _____ is blood plasma from which the fibrin and clotting factors have been removed
16. Crenation is shrinkage and notching of RBC when exposed to hypertonic solution.

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17. Fresh, single RBC is greenish yellow in color due to minimal HB.
18. Reticulocyte are younger erythrocytes with few granules which are remnants of ribosomes
19. The WBCs are classified on the basis of presence & types of granules in cytoplasm as well as the Shape of nucleus
20. About 60% of female neutrophils have Barr body in the form of a drumstick appendage attached to one lobe of their nuclei.
21. The nonkeratinocytes are melanocytes, Langerhans's cells and Merckel's cells.
22. The stratum basal is the basal layer of the epidermis is single row of columnar cells
23. The stratum Spinosum are so called because the cells have spiny projections. The tips of these projections of the neighboring cells are attached to each other by desmosomes
24. The membrane coating granules: These are ovoid membrane-bound granules containing lamellar electron-dense material
25. Melanocytes are ectodermal in origin where they arise from the Neural crest
26. Lysosomes are organelles which provide intracellular digestion and protective functions
28. Ribosomes are organelles most active during tissue regeneration
29. the folds on the inner mitochondrial membrane called Cristae
30. Cardiac muscle cells are joined together end-to-end by intercalated disks

Answer the following question
Differentiate between Proerythroblast and basophilic erythroblast

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ection A

In the following questions, choose the best answer

1. Which is the site of synthesis of protein for local use?
   a. Lysosomes
   b. Peroxisomes
   c. Mitochondria
   d. Ribosomes
   e. Endoplasmic reticulum
2. Which is the site of synthesis of protein for secretion
   a. Rough endoplasmic reticulum
   b. Smooth endoplasmic reticulum
   c. Lysosome
   d. Golgi apparatus
   e. Mitochondria
3. Which organelle is the powerhouse of the cell?
   a. Rough endoplasmic reticulum
   b. Smooth endoplasmic reticulum
   c. Lysosome
   d. Golgi apparatus
   e. Mitochondria
4. Which is the site of drug detoxification
   a. Rough endoplasmic reticulum
   b. Smooth endoplasmic reticulum
   c. Lysosome
   d. Golgi apparatus
   e. Mitochondria
5. Where are ribosomes formed?
   a. Cytoskeleton
   b. Peroxisome
   c. Microfilaments
   d. Centrioles
   e. Nucleoli
6. Which is the site of steroid hormone synthesis?
   a. Rough endoplasmic reticulum
   b. Smooth endoplasmic reticulum
   c. Lysosome
   d. Golgi apparatus
   e. Mitochondria

دفعة 32

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7. The four principal types of tissues are
.Am uscle, nervous, skeletal, connective
.Be pithelial, skeletal, connective, reticular
.Cc onnective, skeletal, epithelial, nervous
D. epithelial, connective, muscle, nervous

8W hich type of epithelium is adapted to protect underlying tissues from abrasion and friction?
.As imple squamous
.B tratified squamous
.Ct ransitional
D. simple cuboidal

9T he three shapes of cells used to classify most epithelia are described as
.As quamous, columnar, and cuboidal
.Bh exagonal, polyhedral, and transitional
.Cf lat, irregular, and oblong
D. thick, slender, and flattened

10. What type of epithelial cells are as tall as they are wide?
a. Simple
b. Stratified
c. Squamous
d. Cuboidal
e. Columnar

11. What do you call the simple squamous epithelium that lines the blood vessels?
a. Epithelioid tissue
b. Mesothelium
c. Endothelium
d. Transitional
e. Pseudostratified

12. What type of gland secretes its product through duct?
a. Endocrine gland
b. Multicellular gland
c. Exocrine gland
d. All of the above
e. None of the above

13W hat are the three basic components of connective tissue?
.Ag round substance, cells, and basement membrane
.Bc artilage, intercellular matrix, and serum
.Cc ells, fibers, and ground substance
D. collagen, elastin, and reticular fibers

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ve tissue that
around cartilage

ndochondral
_____ model

one resorption?

ucture in

rming new bone?

the stages of

elophase,

taphase,

naphase,

naphase,

20. During which stage of mitosis does chromatin coil into chromosomes?
A. metaphase
B. telophase
C. prophase
D. anaphase

21. _____ occurs when the chromosomes line up at the equatorial plate of the cell.
A. prophase
B. metaphase
C. anaphase
D. telophase

22. The completion of _____ marks the end of cell division.
A. prophase
B. cytokinesis
C. interphase
D. anaphase

23. When a cell begins to divide, its chromatin forms
A. Nucleoli.
B. Chromosomes.
C. Histones.
D. none of these

24. What is bone formation called when the bone is formed directly, without using a cartilage template?
a. Intraosseous
b. En bloc
c. Intramembranous
d. Endochondral
e. Endosteum

Section B

State whether the following statements are TRUE or FALSE

25. The adipose cells do have signet ring shape. ( )
26. Macrophages are phagocytic cells arising from monocytes. (t)
27. The mast cell contains acidophilic granules. (f)
28. The cartilage lacks blood vessels (t)

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(he first step in cartilage histogenesis is the formation of mesenchymal condensations (t)

30. (f) Primary function of T lymphocyte is synthesis and secretion of antibodies.
31. (f) macrophage Most common cell type in connective tissue proper
32. (f) osteoblast Contain the most abundant lysosomes
33. (t) kupfer cell Originate from monocyte
34. (f) plasma cell Resemble basophils of blood
35. (f) small lymphocyte Have a large nucleus with a thin rim of cytoplasm
36. (f) brown fat cell Have ring shape appearance
37. (t) Elastic arteries may contain abundant elastic membranes
38. (f) Stratum lucidum contain dead cells
39. (f) Stratum germinativum Deepest layer of epidermis, separated by basement membrane. Cells are cuboidal or columnar.
40. (t) Merkel cells are found in epidermis only

SECTION B

Match the appropriate structures or processes in column (B) with appropriate structural or functional characteristics in column (A). Each answer may be used once or more than once

A B

41. (A) Primary skeletal tissue in fetus
42. (A) Most widely distributed cartilage type in body
43. (C) No perichondrium
44. (C) Contains abundant type I collagen
45. (B) Predominant cartilage type in the external ear
46. (C) Found in the intervertebral disc
47. (E) Cartilage of epiphyseal plates
48. (E) Division of preexisting Chondrocytes
49. (D) Differentiation of perichondrial cells to chondroblasts
50. (A) Most likely to result in the formation of cell nests

A. Hyaline cartilage
B. Elastic cartilage
C. Fibrocartilage
D. Appositional growth
E. Interstitial growth

64.

Match the follow

A or B or C

51. Contain distr
triads
52. Contain abu
caveolae
53. Has intercalat
54. Contraction i
55. Contain no sa
56. Peripherally l
57. Cells are ofte
58. Cells are less
59. Cells are multi
60. Cells lack T tu
61. May be inner
longitudinal lay
62. Thin filaments
63. Lipochrome pi
Has a motor e
65. CT componeni
and endomysiu

SECTION FILL IN T

66. Which type of n
myelin in the C
67. Mention the pi
cell body------
68. ----------
masses of nerv
the brain and s
69. ----------
myelin sheath
cells
70. ----------
that produces
71. ----------
found in the v
cerebrospinal
72. ----------
that phagocyt
73. ----------
plasma and RE
platelets
74. ----------
cells that appe
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75. ----------
76. ----------
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with basophili
nucleus, and
77. ----------
nucleus.

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togenesis is
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ntibodies.
non cell type in

A. Lymphocytes
B. Mast cells
C. Fibroblasts
D. Macrophage
E. Plasma cells
F. Fat cells
G. Myofibroblast

64.

embranes
dead cells
Deepest
ted by basement
dal or columnar.
n epidermis only

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structural or
umn (A). Each
ore than once

Hyaline cartilage
lastic cartilage
ibrocartilage
ppositional growth
nterstitial growth

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ndrocytes
ondrial cells to

formation of

Match the following by filling the brackets with A, or B or C

(A)Skeletal muscle
(B)Cardiac muscle
(C)Smooth muscle

51. Contain distinct triads A
52. Contain abundant caveolae C
53. Has intercalated disks B
54. Contraction is rhythmic and spontaneous B
55. Contain no sarcomeres C
56. Peripherally located nuclei A
57. Cells are often branched B
58. Cells are less distinctly striated B
59. Cells are multinucleated A
60. Cells lack T tubules C
61. May be inner circular and outer longitudinal layers A
62. Thin filaments attach to dense bodies C
63. Lipochrome pigments increase with age B
Has a motor end plate A
65. CT component are epimysium, perimysium and endomysium A

SECTION FILL IN THE BLANKS

66. Which type of neuroglial cell produces myelin in the CNS oligodendrocyte
67. Mention the pigment clumps found in the cell body Lipochrome
68. Ganglia ---these structures are masses of nervous tissue located outside the brain and spinal cord

69. Node of Ranvier-are the gaps in the myelin sheath between adjacent Schwann cells
70. Schwann cell-Type of neuroglial cell that produces myelin in the PNS
71. Ependymal cell-type of neuroglial cell found in the ventricles, circulate cerebrospinal fluid

72. Microglia-type of neuroglial cell that phagocytizes bacterial cells and debris
73. buffy coat-thin layer between plasma and RBC's contains WBC's and platelets
74. Rouleaux-a clump of red blood cells that appear to be stacked like a roll of coins
75. Crenation-shrinkage of RBCs
76. Proerythroblast--early stage of erythrocyte maturation; a large, round cell with basophilic cytoplasm, a central, round nucleus, and one or more nucleoli
77. Normoblast--4th step RBC ejects nucleus.

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Promyelocyte - early stage of granulocyte maturation characterized by a large ovoid nucleus, prominent nucleoli, and azurophilic cytoplasmic granules

thymic epithelial reticular cell - What type of cells sequester developing T cells from blood borne antigens in the thymus?

80. Medulla - In which part of the thymus are Hassall's Corpuscles found?

81. loose reticular cell - What type of connective tissue cells make up the subcapsular sinuses of lymph nodes?

82. trabecular sinus - What structures run between lymph nodules along the trabeculae of lymph nodes?

83. B cell - What type of cells comprise lymphatic nodules?

84. T cell - What type of cells are found in the paracortex of lymph nodes?

85. High endothelial venules - What type of structures in the deep cortex and medulla of the thymus allow for the transition of lymphocytes from the blood stream to lymph tissue?

86. Medullary cord & sinus - What 2 components make up the medulla of lymph nodes?

87. medullary sinus - What part of the lymph node medulla is responsible for filtration?

88. thymus - In what organ do T cells mature?

89. What type of epithelium is found in high endothelial venules (HEV)? - Simple cuboidal -

90. palatine tonsil - What type of tonsils have 10-20 crypts per tonsil?

91. pharyngeal tonsil - What type of tonsils have no crypts?

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ANSWER

Unlike the unicellular ameba human can not live independently outside the human body. comment

Unicellular organism it's cell con do all cellular function so it capable to live independently

Multicellular organism like Human it's cell can't do all cellular function alon it requir interaction with ather cell so it can't live independently

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دفعة 34 ترم اول

Sana'a University
College of Medicine and health sciences
Histology Exam for [redacted] students
Date
Time---2hrs

1. Which of the following is NOT a membranous organelle?
   a. Lysosomes
   b. Peroxisomes
   c. Mitochondria
   d. Ribosomes
   e. Endoplasmic reticulum
2. Which organelle contains digestive enzymes?
   a. Rough endoplasmic reticulum
   b. Smooth endoplasmic reticulum
   c. Lysosomes
   d. Golgi apparatus
   e. Mitochondria
3. Which organelle is considered the powerhouse of the cell?
   a. Rough endoplasmic reticulum
   b. Smooth endoplasmic reticulum
   c. Lysosome
   d. Golgi apparatus
   e. Mitochondria
4. Collectively, what is the cytoplasm and nucleus called?
   a. Plasmalemma
   b. Glycocalyx
   c. Protoplasm
   d. Cristae
   e. Ground substance
5. What is the term for the general process that cells us to expunge material from the cell?
   a. Endocytosis
   b. Exocytosis
   c. Pinocytosis
   d. Phagocytosis
   e. Active transport
6. Which of the following is NOT a membranous organelle?
   a. Lysosomes
   b. Filaments
   c. Peroxisomes
   d. Mitochondria
   e. Endoplasmic reticulum
7. Holocrine secretion
   a. Occurs in sebaceous glands
   b. Occurs in endocrine glands
   c. Involves little or no loss of cytoplasm
   d. All of the above
   e. None of the above

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State whether the following statements are TRUE or FALSE

8. The apical cell membrane of surface epithelial cells may show microvilli (T) t
9. The impermeable junctions are occludens junctions (T). t
10. The nuclei of mucous secretory units are round and basal (T). t
11. In MEROCRINE glands the secretion is released by exocytosis (T). t
12. Exocrine glands are defined as compound glands when the excretory ducts are branched (T). t
13. Transitional epithelium is referred to as urgepithelium (T). t
14. Regarding the stratified squamous epithelium all cells reach the apical surface (T). f
15. The epithelial cells are widely separated with a lot of intercellular substances. (F) f
16. Demilunes is a group of serous cells forming a cap lying on one side of the mucus acinus. (F) t
17. Most of the glands are apocrine (F) f

Fill in the blanks with appropriate word or phrase

18. ~~goblet~~ cell is an example of an exocrine unicellular gland
19. The shape the exocrine gland may tubular, alveolar or ~~—~~ tubulalveolar
20. The type of epithelium covering the skin is ~~—~~ Stratified Squamous f/k
21. Myoepithilial cells are located between the secretory unit and the basement membrane and are concerned in the propulsion of secretion
22. Mammary gland is characterized by apocrine secretion during which the apical part of the cytoplasm is lost

Section

For each characteristic listed in column (B), select the most appropriate cell in column (A): Each answer may be used once or more than once

(A)	(B)
23. (C) Primary function is synthesis and secretion of antibodies.	A. Lymphocytes
24. (E) Predominant cell type in connective tissue proper	B. Mast cells
25. (B) Contain granules filled with heparin and histamine	C. Plasma cells
26. (D) Contain the most abundant lysosomes	D. Macrophage
27. (A) Play important role in immunity	E. Fibroblasts
28. (C) Originate from B lymphocytes	
29. (D) Originate from monocyte	
30. (B) Resemble basophils of blood	
31. (C) Have a clock face nucleus	
32. (A) Have a large nucleus with a thin rim of cytoplasm	
33. (E) Forms intercellular substances	
34. (E) Have a rounded heterochromatic nucleus and very little cytoplasm	
35. (C) Nucleus exhibits a "clock face" pattern	
36. (E) Mature cells are elongated fusiform spindle-shaped	
37. (B) Have distinct basophilic and metachromatic granules.	

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Match the appropriate structures or processes in column (B) with appropriate structural or functional characteristics in column (A). Each answer may be used once or more than once

A	B
38. A (A) Primary skeletal tissue in fetus	A. Hyaline cartilage
39. B (B) Contains predominantly reticular fibers	B. Elastic cartilage
40. A (A) Most widely distributed cartilage type in body	C. Fibrocartilage
41. C (C) No identifiable perichondrium	D. Appositional growth
42. C (A) Contains abundant type 1 collagen	E. Interstitial growth
43. B (B) Is yellowish when fresh	F. None of the above
44. B (B) Predominant cartilage type in the external ear	
45. C (C) Found in the intervertebral disc	
46. E (E) Chondrocytes differentiate from fibroblasts	
47. A (A) Cartilage of epiphyseal plates	
48. E (E) Division of preexisting Chondrocytes	
49. D (D) Differentiation of perichondrial cells to chondroblasts	
50. A (A) Most likely to result in the formation of cell nests	

Explain why

1. Explain why the plasma cell is basophilic and has an unstained area near its nucleus?

- the plasma cell is basophilic because it has glycoprotein, glycosaminoglycan in its ground substance.

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- the plasma cell has unstained because the basophilic cells don't stained with A&E good stains.

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21. (C) Contain the most abundant lysosomes
22. (E) Originate from B lymphocytes

دفعة 35 ترم اول

a. Primary lysosomes
b. Secondary lysosomes
c. Lysosomes
d. peroxisomes
e. Secretory granules

7. It is specialized in some cells (e.g. skeletal muscle fibers) and known as sarcoplasmic reticulum

a. Mitochondria
b. RER
c. SER
d. Golgi apparatus
e. Lysosomes

8. With electron microscope: It appears as anastomosing tubules with no ribosomes.

a. Mitochondria
b. RER
c. SER
d. Golgi apparatus
e. Lysosomes

9. Concerned with intracytoplasmic digestion

a. Mitochondria
b. RER
c. SER
d. Golgi apparatus
e. Lysosomes

10. It is formed of a network of rough surfaced interconnected cisternae and tubules and is responsible for protein synthesis.

A. Mitochondria
B. RER
C. SER
D. Golgi apparatus
E. Lysosomes

11. has a double membrane

a. Mitochondria
b. RER
c. SER
d. Golgi apparatus
e. Lysosomes

12. The four principal types of tissues are

a. muscle, nervous, skeletal, connective
b. epithelial, skeletal, connective, reticular
c. connective, skeletal, epithelial, nervous

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21. (D) Contain the most abundant lysosomes
22. (B) Originate from B lymphocytes
23. (C) Originate from monocyte
24. (E) Have a clock-face nucleus

A. Lymphocytes
B. Mast cells
C. Fibroblasts
D. Macrophages

d. epithelial, connective, muscle, nervous

13. **Which type of epithelium is adapted to protect underlying tissues from abrasion and friction?**
a. simple squamous
b. stratified squamous
c. transitional
d. simple cuboidal

14. **The three shapes of cells used to classify most epithelia are described as**
a. squamous, columnar, and cuboidal
b. hexagonal, polyhedral, and transitional
c. flat, irregular, and oblong
d. thick, slender, and flattened

15. **What type of epithelial cells are as tall as they are wide?**
a. Simple
b. Stratified
c. Squamous
d. Cuboidal
e. Columnar

16. **What do you call the simple squamous epithelium that lines the blood vessels?**
a. Epithelioid tissue
b. Mesothelium
c. Endothelium
d. Transitional
e. Pseudostratified

17. **What type of gland secretes its product through duct?**
a. Endocrine gland
b. Multicellular gland
c. Exocrine gland
d. All of the above
e. None of the above

For each **characteristic** listed in **column (B),** select the most **appropriate cell in column (A): Each answer may be used once or more than once**

SECTION C

For each characteristic listed in column (B), select the most appropriate organell column (A): Each answer may be used once or more than once

18. E (E) Primary function is synthesis and secretion of antibodies.
19. C (C) Most common cell type in connective tissue proper
20. B (B) Contain granules filled with heparin and histamine

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21. D (D) Contain the most abundant lysosomes
22. B (B) Originate from B lymphocytes

23. D (D) Originate from monocyte
24. E (E) Have a clock face nucleus

25. A (A) Have a large nucleus with a thin rim of cytoplasm
26. F (F) Have ring shape appearance

A. Lymphocytes
B. Mast cells
C. Fibroblasts
D. Macrophage
E. Plasma cells
F. Fat cells

MATCHING (Each answer may be used once, more than once, or not at all.

27. A Primary skeletal tissue in fetus
28. B Contains predominantly reticular fibers
29. C No identifiable perichondrium
30. A Most widely distributed cartilage type in the body
31. C Contains abundant type I collagen
32. A Articular cartilage
33. B Predominant cartilage type in the external ear (auricle)
34. C Found in the annulus fibrosus of intervertebral disks
35. D Contains type 11collagen
36. A Cartilage of epiphyseal plates

(A)Hyaline cartilage
(B)Elastic cartilage
(C)Fibrocartilage
(D)All of the above
(E)None of the above

Answer in brief

1. Differentiate between Myoepithelial and neuroepithelium
2. Functions of perichondrium

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MATCH THE FOLLOWING

1. (J) The subcutaneous tissue just deep to the skin made up of mostly adipose tissue
2. (I) Epidermal cell that acts as a macrophage to activate our immune system to destroy foreign substances
3. (G) Deepest epidermal layer made of a single row of cells that undergo rapid cell division
4. (H) Epidermal cell functions as touch receptors
5. (E) Which layer of the epidermis is found only in thick skin?
6. (D) Which layer of the epidermis is made up of a weblike system of intermediate filaments with flattened keratinocytes that appear "spiny
7. (D) The largest layer of the skin

A. Apocrine glands
B. Eccrine sweat gland
C. Myoepithelial cell
D. Stratum spinosum
E. Stratum Lucidum
F. Stratum granulosum
G. Stratum basale
H. Merkel cell
I. Langerhans' cell
J. Hypodermis
K. Hair shaft
L. Hair root

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8. F)Layer of the epidermis consists of three to five cell layers with keratinocytes that accumulate granules that form keratin and lipids that provide waterproofing
9. B)Produces true sweat; abundant on the palms of hand, soles of the feet, and forehead
10. A)Produce true sweat plus fatty substances and proteins; found in the axillary (armpit) and anogenital areas of the body
11. K)The portion of the hair that projects beyond the skin
12. L)The part of, the part of the hair contained within the follicle, below the surface of the skin
13. C)contracts to push product out of gland

MATCH THE FOLLOWING

14. ( )They have a wide base and a pointed apex
15. ( )They have no taste buds
16. ( )They are the most numerous
17. ( )The covering epithelium is keratinized
18. ( ) They have a narrow base and broad apex
19. ( )They appear pink in color
20. ( )Their taste buds are present at the surface
21. ( )They are about 12 in number
22. ( ) Each is surrounded by a circular furrow
23. ( )They are present along the V-shaped sulcus terminalis
24. ( )Mixed glands but mostly mucous
25. ( )Mixed gland but mostly serous
26. ( )Purely serous gland
27. ( )Nuclei are central & rounded
28. ( )Nuclei are basal & flattened
29. ( )Cytoplasm is basophilic and granular
30. ( )Cytoplasm is vacuolated due to dissolved mucin
31. ( )Small diameter
32. ( )Larger diameter
33. ( )Narrow lumen
34. ( )Wider lumen
35. ( )Basal striations

A. Filiform papillae
B. Fungiform papillae
C. Circumvallate papillae
D. Foliate papillae
E. Submandibular gland
F. Sublingual gland
G. Parotid gland
H. Mucous acini
I. Serous acini
J. Striated duct
K. Intercalated duct

Loay Al Bokari

Answer the following question. Goblet cell does not stain well. comment

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20. (R)innermost lining (endothelium) basal lamina, subendothelial sublayer
21. (E)Smooth muscle cells, elastic lamellae, ground substance is tunica Media.
22. (F)the blood vessels of the blood vessels d. Have lymphoid tissue
23. (B)has abundant elastic membranes in its tunica media Reticulocytes
24. (H)These type of capillaries have pores and associated with endocrine glands Fenestrated Capillaries.
25. (I)Mucosa associated lymphoid tissue Sinusoidal
26. (K)Organized aggregations of lymphocytes, spherical Lymphoid nodules
27. (M)Tonsil lined by SSE with branching crypts Palatine tonsile
28. ( ) cortex of lymph node has T cells
29. (-)Macrophage of CNS Microglia
30. ( )produce cerebro-spinal fluid
31. (P)CNS cell which forms myelin Myeline sheath
32. (W) Basophilic substance of neurons Nissle bodies
33. (M)Whitish fatty protein lipoid Smooth Muscle
34. (Z)neuron -Single short process that emerges from the cell body Unipolar neurons
35. (P) increase the speed of conduction Myelin sheath

State whether the following statements are true T or false F

1. (F) **The muscular vein has one** elastic membrane which is located in the tunica intima.
2. (F)The largest tunica of a large vein is the adventitia which has abundant skeletal muscle cells arranged longitudinally
1. (F) Blood basophils enter damaged tissues and enhance the inflammation process and contain histamine and heparin
3. (T) Primary lymphoid nodules contain an active germinal center, which is pale staining and contains proliferating small lymphocytes.
4. (F) The function of lymph nodes is to filter lymph and blood and present the antigen to lymphocytes.
5. (T) Lymph circulation occurs by the following route: afferent lymph vessels – subcapsular space - medullary sinus - cortical sinuses - efferent lymph vessel
6. (T)-Nerve cells—has abundant euchromatin, Nissl bodies , Golgi (cell with high metabolic rate and vesicular transport)
7. (F)-Cytoplasm (axoplasm) coontains abundant microtubules and neurofilaments, but no ribosomes or RER
8. (T) Synaptic vesicles: Small, polymorphic membrane-bound structures coontaining neurotransmitter found in the axoplasm of the pre-synaptic neuron——
9. (T)developing RBCs fully eosinophilic with a dark nucleus is called ~~Basophilic~~ erythrocyte

Fill in the blanks

1. **WBCs which have specific granules are called** Granulocyte
2. ~~Osteoblasts~~ is a bone cell primarily responsible for the initial secretion and calcification of the bone matrix:
3. Aggregates or groups of nerve cell bodies outside the central nervous system are termed ~~sympathetic~~ Ganglia

24/06/2014

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SECTION B (12 MARKS)

For each **characteristic** listed in **column (B),** select the most appropriate **cell in column (A): Each answer may be used once or more than once**

(A)	(B)
9. (C) Primary function is synthesis and secretion of antibodies.	
10. (E) Predominant cell type in connective tissue proper	A. Lymphocytes
11. (B) Contain granules filled with heparin and histamine	B. Mast cells
12. (D) Contain the most abundant lysosomes	C. Plasma cells
	D. Macrophage
13. (C) Originate from B lymphocytes	E. Fibroblasts
14. (D) Originate from monocyte	
15. (B) Resemble basophils of blood	
16. (C) Have a clock face nucleus	
17. (A) Have a large nucleus with a thin rim of cytoplasm	
18. (E) Forms intercellular substances	
19. (C) Have a rounded heterochromatic nucleus and very little cytoplasm	
20. (C) Nucleus exhibits a "clock face" pattern	

SECTION C (10 MARKS)

21. Cells which are responsible for the **resorption of bone** are called osteoclasts. (t)
22. The **periosteum** consists of outer cellular and inner fibrous layer. (X)
23. The **cell type in bone** most probably derived from blood monocytes is the osteogenic cell. (X)
24. **Volkmann's canal** is surrounded by concentric bony lamellae. (✓)
25. The only organelle that contains DNA is the **mitochondria** (X)
26. One of the functions of **smooth endoplasmic reticulum** is synthesis of protein. (X)
27. The **Golgi apparatus** is poorly developed in plasma cells. (X)
28. **Free ribosomes** are found in great quantities in cancer cells. (✓)
29. The **cartilage** lacks blood vessels (t)
30. The first step in **cartilage histogenesis** is the formation of mesenchymal condensations (t)

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⇒ Match :- Each answer may be used once or more than one.:-

(A)	(B)
1- Often lacks a definitive stratum lucidum	A. Thick skin
2. More abundant sweat glands	B. thin skin
3. More abundant sebaceous glands.	C Eccrine sweat glands.
4. Ducts usually empty into hair follicles	D. Sebaceous glands.
5. Holocrine secretion.	E. keratinocytes.
6. Secrete by exocytosis (merocrine)	F. Melanocytes.
7. Contain dark cells & clear cells	G. Langerhan's cells.
8. Pale-staining, foaming appearance.	H. Merkel's cells.
9. Most abundant cell type in epidermis.	
10. Stellate (star shaped) cells.	
11. Neural crest derivatives	
12. Antigen-presenting cells.	
13. Intense tyrosinase activity.	
14. May be mechanoreceptors.	

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⇒ Match :- Each answer may be used once or more than once.

(A)

(1) Primary function is synthesis and secretion of antibodies.
(2) Predominant cell type in Connective tissue proper.
(3) Contain granules filled with heparin & histamine.
(4) Contain the most abundant lysosomes.
(5) Originate from lymphocytes.
(6) Originate from monocyte.
(7) Resemble basophils of blood.
(8) Have a clock face nucleus.
(9) Have a large nucleus with a thin rim of cytoplasm.
(10) Forms intercellular substances.
(11) Have a rounded Hetrochromatic nucleus & very little cytoplasm.
(12) Neuleus exhibit "clock face" pattern.

(B)

1 → Lymphocytes.
2 → Mast cells.
3 → Plasma cells.
4 → Macrophages.
5 → Fibroblasts.

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(A) Thick skine
(B) thine skine

(C) Eccrine sweat glands
(D) Sebaceous glands
(E) Keratinocytes
(F) Melanocytes
(G) Langerhans' cell(s)
(H) Merkel's cell(s)

(A)

1. (B) Often lacks a definitive stratum lucidum
2. (A) More abundant sweat glands
3. (B) More abundant sebaceous glands
4. (D) Ducts usually empty into hair follicles
5. (D) Holocrine secretion
6. (C) Secrete by exocytosis (merocrine)
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9. (E) Most abundant cell type in epidermis
10. (G) Stellate (star-shaped) cells
11. (F) Neural crest derivatives
12. (G) Antigen-presenting cells
13. (F) Intense tyrosinase activity
14. (H) May be mechanoreceptors

SECTION C (6 marks)

Myoepithelial cell

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SECTION B (10 MARKS)

State whether the following statements are TRUE or FALSE. If the statement is False correct it explaining why.

11. Protein secreting cells are characterized by vesicular nucleus and a small nucleolus. (F)
12. Negative Golgi image is clearly seen in fat cells. (T)
13. The cell membrane is symmetrical. (F)
14. Synthesis and secretion of protein is carried out by RER and Golgi apparatus. (t)
15. The reverse of phagocytosis is pinocytosis (F)
16. A Goblet cell stains well with hematoxylin and eosin. (F)
17. The simple columnar epithelium is well adapted for exchange of gases and metabolites (T)
18. Macrophages are capable of endocytosis. (+)
19. The cells of connective tissue are very close together. (f)
20. The reticular fibers are argyrophilic. (+)

SECTION C (10 MARKS)

Match the appropriate structures or processes in column (B) with appropriate structural or functional characteristics in column (A). Each answer may be used once or more than once

A	B
21. (A) Primary skeletal tissue in fetus	**A. Hyaline cartilage**
22. (F) Contains predominantly reticular fibers	**B. Elastic cartilage**
23. (A) Most widely distributed cartilage type in body	**C. Fibrocartilage**
24. (A) No identifiable perichondrium	**D. Appositional growth**
25. (:) Contains abundant type 1 collagen	**E. Interstitial growth**
26. (B) Predominant cartilage type in the external ear	**F. None of the above**
27. (C) Found in the intervertebral disc	
28. (E) Division of preexisting Chondrocytes	
29. (F) Differentiation of perichondrial cells to chondroblasts	
30. (E) Most likely to result in the formation of cell nests	

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Fill in the blanks with appropriate word or phrase

9. Goblet-cell is an example of an exocrine unicellular gland
10. The type of epithelium covering the skin is ---SSEK---
11. The Myoepithelial cells are located between the secretory unit and the basement mem and are concerned in the propulsion of secretion
12. Mammary gland is characterized by Apocrine secretion during which the apical p the cytoplasm is lost
13. Exocrine glands are defined as compound glands when the excretory duct branched (T)
14. Transitional epithelium is referred to as uroepithelium ( ).T
15. Regarding the stratified squamous epithelium all cells reach the apical surface ( ).
16. The epithelial cells are widely separated with a lot of intercellular substances. ( )
17. Demilunes is a group of serous cells forming a cap lying on one side of the m acinus. ( )
18. Most of the glands are apocrine ( ) F merocrine

SECTION C (12 MARKS)

For each **characteristic** listed in **column (B)**, select the most **appropriate organel column (A): Each answer may be used once or more than once**

	A	B
19.	(B) Site of synthesis of protein for local use	A. Centriole
20.	(D) Site of synthesis of protein for secretion	B. Free ribosomes
21.	(E) Site of drug detoxification	C. Mitochondria
22.	(C) Site of intense ATP production	D. RER
23.	(G) Considered components of cytoskeleton	E. SER
24.	(E) Site of steroid hormone synthesis	F. Golgi Apparatus
25.	(F) Site of core glycosylation of secretory proteins	G. Microtubules
26.	(F) Site of sulfation of sulfated GAGs	
27.	(G) Composed of tubulins	
28.	(C) Forms shelf like (cristae) into its matrix	
29.	(C) Contains DNA	
30.	(A, G) Important components of cilia and flagella	or centrioles

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SECTION D (5 MARKS)

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ECTION B (12 MARKS)

For each **characteristic** listed in **column (B)**, select the most **appropriate** cell in column (A): **Each answer may be used once or more than once**

(A)	(B)
9. (C) Primary function is synthesis and secretion of antibodies.	
10. (E) Predominant cell type in connective tissue proper	**A. Lymphocytes**
11. (B) Contain granules filled with heparin and histamine	**B. Mast cells**
12. (D) Contain the most abundant lysosomes	**C. Plasma cells**
13. (C) Originate from B lymphocytes	**D. Macrophage**
14. (D) Originate from monocyte	**E. Fibroblasts**
15. (B) Resemble basophils of blood	
16. (C) Have a clock face nucleus	
17. (A) Have a large nucleus with a thin rim of cytoplasm	
18. (E) Forms intercellular substances	
19. (A) Have a rounded heterochromatic nucleus and very little cytoplasm	
20. (C) Nucleus exhibits a "clock face" pattern	

SECTION C (10 MARKS)

21. Cells which are responsible for the **resorption of bone** are called osteoclasts. (t) ✓
22. The **periosteum** consists of outer cellular and inner fibrous layer. (✗)
23. The **cell type in bone** most probably derived from blood monocytes is the osteogenic cell. (F)
24. **Volkmann's canal** is surrounded by concentric bony lamellae. (F)
25. The only organelle that contains DNA is the **mitochondria** (✓)
26. One of the functions of **smooth endoplasmic reticulum** is synthesis of protein. (✗)
27. The **Golgi apparatus** is poorly developed in plasma cells. (✗)
28. **Free ribosomes** are found in great quantities in cancer cells. (T)
29. The **cartilage** lacks blood vessels (t)
30. The first step in **cartilage histogenesis** is the formation of mesenchymal condensations (t)

SECTION

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2. Ectoderm, mesoderm, and endoderm

SECTION B (10 MARKS)

State whether the following statements are TRUE or FALSE. If the statement is False correct it explaining why.

11. Protein secreting cells are characterized by vesicular nucleus and a small nucleolus. ( )

12. Negative Golgi image is clearly seen in fat cells. ( )

13. The cell membrane is symmetrical. (t)

14. Synthesis and secretion of protein is carried out by RER and Golgi apparatus. (t)

15. The reverse of phagocytosis is pinocytosis (f)

16. A Goblet cell stains well with hematoxylin and eosin. ( )

17. The simple columnar epithelium is well adapted for exchange of gases and metabolites ( )

18. Macrophages are capable of endocytosis. (t)

19. The cells of connective tissue are very close together. (f)

20. The reticular fibers are argyrophilic. ( )

SECTION C (10 MARKS)

Match the appropriate structures or processes in column (B) with appropriate structural or functional characteristics in column (A). Each answer may be used once or more than once

A	B
21. ( ) Primary skeletal tissue in fetus	**A. Hyaline cartilage**
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24. ( ) No identifiable perichondrium	**D. Appositional growth**
25. ( ) Contains abundant type 1 collagen	**E. Interstitial growth**
	F. None of the above

26. ( ) Predominant cartilage type in the external ear
27. ( ) Found in the intervertebral disc
28. ( ) Division of preexisting Chondrocytes
29. ( ) Differentiation of perichondrial cells to chondroblasts
30. ( ) Most likely to result in the formation of cell nests

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For each **characteristic** listed in **column (B),** select the most **appropriate organelle in column (A): Each answer may be used once or more than once**

B	A
1. ( ) Site of synthesis of protein for local use	**A. Centriole**
2. ( ) Site of synthesis of protein for secretion	B. **Free ribosomes**
3. ( ) Site of drug detoxification	C. **Mitochondria**
4. ( ) Site of intense ATP production	D. **RER**
5. ( ) Considered components of cytoskeleton	E. **SER**
6. ( ) Site of steroid hormone synthesis	F. **Golgi Apparatus**
7. ( ) Site of core glycosylation of secretory proteins	G. **Microtubules**
8. ( ) Site of sulfation of sulfated GAGs	
9. ( ) Composed of tubulins	
10. ( ) Forms shelf like (cristae) into its matrix	
11. ( ) Contains DNA	
12. ( ) Important components of cilia and flagella	

SECTION B

For each **characteristic** listed in **column (B),** select the most **appropriate cell in column (A): Each answer may be used once or more than once**

(A)	(B)
1. ( ) Primary function is synthesis and secretion of antibodies.	
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4. ( ) Contain the most abundant lysosomes	**C. Plasma cells**
	D. Macrophage
5. ( ) Originate from B lymphocytes	**E. Fibroblasts**
6. ( ) Originate from monocyte	
7. ( ) Resemble basophils of blood	
8. ( ) Have a clock face nucleus	
9. ( ) Have a large nucleus with a thin rim of cytoplasm	
10. ( ) Forms intercellular substances	
11. ( ) Have a rounded heterochromatic nucleus and very little cytoplasm	
12. ( ) Nucleus exhibits a "clock face" pattern	

GOOOOOOOOOOOOOOOOOD LUCK

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FILL IN THE BLANKS

1. The most **numerous lingual papillae** are the ..filiform..
2. **Brunner glands** are submucosal glands found in the ..duodenum..
3. The **Payers patches** are lymphoid tissue located in the ..ileum..
4. The glands of the tongue .....
5. By EM the chief cells are characterized by 1.....
   2.....3.....4.....
6. Mention the site of the stem cells of the following
   1-esophagus.....
   2-gastricgland.....
   3-small intestine.....
7. The submucosa of the jujenum is characterized by the absence of .
   1-..... and .....
8. The lining epithelium of the oral cavity is .....stratified squamous non-keratinized.....

Matching

(A)	(B)
1. (B) Often lacks a definitive stratum lucidum	A) Thick skin
2. (A) More abundant sweat glands	B) Thin skin
3. (H) More abundant sebaceous glands	C) Eccrine sweat glands
4. (D) Ducts usually empty into hair follicles	D) Sebaceous glands
5. (D) Holocrine secretion	E) Keratinocytes
6. (C) Secrete by exocytosis (merocrine)	F) Melanocytes
7. (C) Contain dark cells and clear cells	G) Langerhans' cell(s)
8. (D) Pale-staining, foamy appearance	H) Merkel's cell(s)
9. (E) Most abundant cell type in epidermis	
10. (G) Stellate (star-shaped) cells	
11. (I) Neural crest derivatives	
12. (G) Antigen-presenting cells	
13. (F) Intense tyrosinase activity	
14. (H) May be mechanoreceptors	

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Q.4. Put the suitable letter from group B into the appropriate bracket of Group A *(13 marks)*

Group A	Group B
(E) Cilia	A. stratum cornum
(H) nuclear division	B. lamina rara
(T) Trisomy	C. plasma cell
(U) Reticular lamina	D. hyaline cartilage
( ) testis	E. 27 microtubules
(C) clock face nucleus	F. atria
(X) Wharton's jelly	G. lymphatic capillaries
(Q) Sharpy's fibers	H. karyokinesis
(D) Articular cartilage	I. Compound alveolar glands
(W) Misaxon	J. areolar C.T.
(V) Purkinje fibers	K. myelinated nerve fibers
( ) Keratohyalin	L. polyploidy
( ) Rouget cells	M. endosteum
	N. 20 microtubules
	O. cytokinesis
	P. mast cell
	Q. periosteum
	R. blood capillaries
	S. stratum granulosum
	T. aneuploidy
	U. lamina densa
	V. ventricles
	W. non-myelinated nerve fibers
	X. mucoid C.T.
	Y. elastic cartilage
	Z. compound tubular gland

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